

REMARKS

This amendment is responsive to the Office Action dated October 21, 2004. A response is due by January 21, 2005, without extending the time for response.

Claims 1, 3, 15 – 18 are pending in this application with claims 17 and 18 being newly added.

The Examiner has rejected claims 15 and 16, as anticipated by, under 35 U.S.C. Section 102(b) and, claim 16, in the alternative under 35 U.S.C. section 103(a) as being obvious over Korai (an article) taken with Tamaki (USPN 5,494,567). Specifically, the Examiner has stated that:

“The reference teaches on page 2 and 3 mixing pitches followed by heating. No difference is seen, as the temperature is the same as claimed. Even though the reference does not explicitly teach inert atmosphere, it is implied by the reference. Page 1510 teaches 400 degrees. In so far as the rejection is under ‘103, using the claimed ratio of pitches and the temperatures is an obvious expedient of optimization; In re Boesch 205 USPQ 215. Mesophase is deemed formed, as the process conditions are the same as claimed.”

In response to this rejection, as it relates to claims 15 and 16, the Applicants respond as follows.

Under 35 U.S.C. Section 102, anticipation requires that each and every element of the claimed invention be disclosed in the prior art. . . . In addition, the prior-art reference must be enabling, thus placing the allegedly disclosed matter in the possession of the public. *Akzo N.V. v. U.S. International Trade Commission*, 1 USPQ 2D 1241, 1245 (Fed. Cir. 1986), cert denied, 482 U.S. 909 (1987).

In light of the standard for anticipation, all of the elements in claim 15 and 16 must be disclosed by Korai et al., in order for the rejection to be maintained. Applicants argue that all of the pending claim elements are not, however, taught by Korai. Specifically, Applicants argue that the claimed element of, “heat-soaking the resultant mixture at a temperature of from about 400°C to about 450°C to convert isotropic pitch to optically anisotropic mesophase pitch” is not disclosed by Korai et al. Although admittedly, Korai et al does disclose on page 1504 under the section described by “2.2 preparation” heating pitches at 300-400°C for 30 minutes, Korai makes no mention of the claimed element of “to convert isotropic pitch to optically anisotropic

mesophase pitch.”

From the Applicants’ specification on page 6 ranging from lines 17-20, the Examiner will appreciate that in order to convert isotropic pitch to optically anisotropic mesophase pitch, “heat soaking will generally be carried out for a duration of from about 2 to about 25 hours, with the understanding that shorter heat-soaking times will result in a less optically anisotropic sample as compared to a sample treated at the same temperature and for a longer duration.” Therefore, in order for Korai et al. to anticipate the element in claim 15 and 16, “convert isotropic pitch to optically anisotropic mesophase pitch,” Korai would have to teach heat soaking isotropic pitch within the time range of for about 2 to about 25 hours. Korai et al. provides no such teaching. On the contrary, Korai teaches heat soaking for only 30 minutes (page 1504 under the section 2.2 Preparation), and this would not result in conversion of optically isotropic pitch to optically anisotropic pitch. To further Applicants’ point, Korai et al. provides no teaching with respect to heating pitch within a temperature range from about 400 to about 450°C in combination with a time element within the range of from about 2 to about 25 hours. Therefore, the teachings of Korai et al. not only fail to recite each of the claimed elements in claim 15 and 16, but furthermore, Korai et al. *fails to disclose any method by which isotropic pitch could be converted to optically anisotropic mesophase pitch*. Therefore, the elements required to pose an anticipation rejection are not met. Applicants therefore request that the Examiner reconsider and withdraw the anticipation rejection at it has been applied to claim 15 and 16 based upon Korai et al.

And as far as the Examiner has rejected claims 15 and 16 as being obvious in view of Korai, Applicants argue that Korai is silent on the subject of converting optically isotropic pitch to optically anisotropic pitch. There is no mention of this conversion at all by Korai. And since Korai makes no mention of using Korai’s disclosed methods for the purpose of converting optically isotropic pitch to optically anisotropic pitch, it would not be obvious to one of ordinary skill in the art to try to do so. On the contrary, Korai is directed to preparing mesocarbon microbeads (see Korai’s abstract), and it is clearly not directed to converting optically isotropic pitch to optically anisotropic pitch. Further, Korai makes no mention of experimenting with any of Korai’s teachings to arrive at the Applicants’ claimed invention. So Applicants request that any rejections directed to claims 15 and 16 that were based upon 35 U.S.C. 103(a) be reconsidered and withdrawn.

Additionally, the Examiner has provided an alternate basis for rejecting claims 15 and 16 as being obvious over Korai. The Examiner has stated, "In so far as the rejection is under '103, using the claimed ratio of pitches and the temperatures is an obvious expedient of optimization," and has cited *In re Boesch* 205 USPQ 215 as authority for this position. In response, Applicants point out that the pending claims 15 and 16 are not directed to optimizing Korai's process for making microbeads. Instead pending claims 15 and 16 are directed to, "convert(ing) isotropic pitch to optically anisotropic mesophase pitch." And further, Korai provides no teaching for making such a conversion. Applicants therefore request that the Examiner's 103(a) rejection be withdrawn because the Applicants' pending elements for Claims 15 and 16 are not directed to an expedient of optimization for making microbeads- as is taught by Korai. Applicants' claimed process does something completely different, and pending claims 15 and 16 aren't at all directed to making microbeads.

Regarding claim 16, the Examiner has further stated, with regard to rejecting claim 16, that "even though the reference does not explicitly teach inert atmosphere, it is implied by the reference." On this point, the Applicants point out that after careful review of Korai, there is no disclosure whatsoever related to the atmospheric conditions that are used during heating or annealing pitch. On the contrary, Korai only discloses using an inert atmosphere *after* annealing (i.e., *after* heating) and during the cooling of the *annealed* pitch (see Korai, page 1504, col. 1, under the paragraph entitled, "2.2 preparation"). In that portion of the reference, Korai discloses, "... *After annealing* (emphasis added), *the soaked pitch was cooled* to room temperature *under nitrogen flow* and then" And that is the only portion of Korai that discusses an inert atmosphere (such as nitrogen). In fact, Korai is silent on the atmospheric conditions during heating or annealing pitch. So because there is no teaching, suggestion, or implication related to using an inert atmosphere during the heating of pitch, Applicants request that the Examiner remove the rejections directed to claim 16.

Regarding the Examiner's rejection of pending claim 16 using 35 U.S.C. 103(a) for the position that Claim 16 is "unpatentable over Korai taken with Tamaki," Applicants respond as follows. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 221, USPQ 929, 932, 933 (Fed. Cir. 1984), states that, "Obviousness cannot be established by combining the teaching of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. Under section 103, teachings of references can be combined only if there is some

suggestion or incentive to do so.” To this legal point, neither Korai nor Tamaki provides any teaching or suggestion to be combined with another reference, and notably, such a combination would not even arrive at the claimed invention. And it would make no logical sense to combine them in an attempt to arrive at the claimed invention because the claimed element of “convert(ing) optically isotropic pitch to optically anisotropic pitch,” is not an objective of either Korai or Tamaki.

Additionally, Tamaki does not teach using an inert atmosphere during the act to heating a pitch. As support for the Applicants’ position, Applicants ask the Examiner to closely review Tamaki at col. 5-6, lines 62-4. At that citation, Tamaki teaches exactly the following: “In case of the solid Lewis acid, removal of the co-solvent is preferably carried out by vacuum distillation. It is preferable to *carry out the operation* (referring to removing the co-solvent) *in the inert gas atmosphere*. . . . In case of a vaporizable Lewis acid, purging by an *inert gas* or vacuum distillation is preferable to remove the . . .” And the Applicants cannot find any other teaching in Tamaki directed to using an inert atmosphere. This is very important because even Tamaki *does not teach using an inert atmosphere during the heating of pitch*. Instead, Tamaki teaches using an inert atmosphere during the removal of a co-solvent, *and not* during the heating of pitch as asserted by the Examiner. So even if the two references were combined, you would not arrive at the claimed invention. Applicants therefore request that this rejection be reconsidered and removed.

In addition, the Examiner rejected Claims 1 and 15 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Marsh et al. (a publication) in view of Romine et al. (USPN 5,501,788). The Examiner has also rejected claims 3 and 16 under 35 U.S.C. 103(a) as being unpatentable over Marsh/Romine taken with Tamaki.

The Examiner has stated that, “Marsh teaches in table 3 and section 2.2.9 mixing a mesophase pitch and A240 (shown by Romine in ex. 1 to be non-mesophase) and heating to 300-400 for 2 hours. The overlapping temperature range renders the claims unpatentable; the recitation of 400 is deemed to anticipate.” Later on, the Examiner notes, “It is noted that mesophase formation occurs upon heating, with longer heating meaning more conversion – this is the trust of the Marsh article. Claim 15 only requires minimal amounts of conversion.”

Marsh is a paper which discusses characterizing quinoline insoluble materials and the coalescence behavior of spheroidal mesophase pitch. In that regard, it is similar to Korai which

also teaches making mesophase spheroids. Both of these references are directed to forming spheroids and are not teachings of converting isotropic pitch to optically anisotropic mesophase pitch. But, as the Examiner notes, Marsh, on page 557, at section 2.2.9 along with table 3, heats a mixture of Mesophase and isotropic pitch to 300 – 400 °C for 2 hours. Further, the results in Table 3 indicate that the Q1 content goes from 33 wt % to 41 wt %.

But, the Examiner has take the findings out of context and they do not teach converting isotropic pitch to anisotropic pitch. In fact, it is only by hindsight that the Examiner might view the teaching as suggesting that there is a conversion.

Marsh on page 565, the right hand column, in the last sentence of the paragraph above the “Discussion”, states “As the control of A240, HTT 400 °C has created only 0.8% Q1, the increase of wt % of the Q1: Pitch system, 400 °C (1:2) from 33 to 41 may be attributable to imbibition of pitch into the mesophase material.” “Imbibition” is a term used in the petroleum industry which characterizes the adsorbing of a wetting phase into a solid phase (usually a porous rock). Applicants have enclosed definitions from the internet which support this understanding. Therefore, Marsh does not suggest or teach conversion and would only be viewed as suggesting such in light of Applicants’ disclosure. Further, Applicants employ synthetic mesophase pitch while Marsh employs mesophase pitch extracted from A240 pitch which is different.

Since this appears to overlap with the claimed invention because Marsh heats to 400 °C for 2 hours, the Examiner was mislead into believing that the processes were the same. But, Applicants’ unexpected results, as reported, in Applicants’ Table 1, on page 15 of the application, negate any obviousness issues and lend patentability to Applicants’ claims. Therefore, Marsh could not anticipate the claimed invention and so reconsideration and withdrawal of the rejection is respectfully requested.

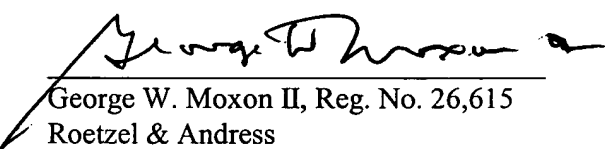
With regard to obviousness rejection of claims 3 and 16, Tamaki does not teach using an inert atmosphere during the heating of pitch or a pitch mixture. As support for the Applicants’ position, Applicants ask Examiner to closely review Tamaki at col. 5-6, lines 62-4. At that citation, Tamaki teaches exactly the following: “In case of the solid Lewis acid, removal of the co-solvent is preferably carried out by vacuum distillation. It is preferable to carry out the operation (referring to removing the co-solvent) in the inert gas atmosphere. . . . In case of a vaporizable Lewis acid, purging by an inert gas or vacuum distillation is preferable to remove the . . .” And the Applicants cannot find any other teaching in Tamaki directed to using an inert

atmosphere. This is very important because even Tamaki does not teach using an inert atmosphere during the heating of pitch. Instead, Tamaki teaches using an inert atmosphere during the removal of a co-solvent, and not during the heating of pitch as asserted by the Examiner. So even if Tamaki is combined with Marsh/Romine, the resultant combination would not arrive at the claimed invention. Specifically, none of the references, i.e., Korai, Marsh, Romine, or Tamaki, teach using an inert atmosphere during the heating of pitch. In fact, in the case of Korai and Marsh, since they are not converting isotropic pitch to anisotropic pitch, there is no need for an inert atmosphere. Therefore, the pending claim element of, "... heating the pitch mixture in an inert atmosphere," that is present in subject claims 3 and 16 isn't taught in the cited prior-art references. Nor would it have been obvious to use an inert atmosphere during the heating of a pitch mixture because there is nothing in the cited references to suggest doing so. Applicants therefore request that this rejection be reconsidered and removed.

In view of the foregoing, reconsideration and withdrawal of all of the Examiner's rejections is requested, and the Applicants also request that the pending claims be allowed as they currently stand.

Should the Examiner have any questions or wish to discuss any of the foregoing in more detail, the undersigned attorney would welcome a telephone call to finalize allowance of this application and its issuance as a patent.

Respectfully submitted,



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